

# METRONDVM

## User Manual

Version 7.11     © EponaTech LLC 2014

### Use of the Manual

**The Metron-DVM software is designed to meet international quality and performance standards. Personnel operating the software must have a thorough understanding of the proper operation of the system.**

**This guide has been prepared to aid medical and technical personnel to understand and operate the system. Do not operate the system before reading this manual and gaining a clear understanding of the operation of the system. If any part of this manual is not clear, please contact EponaTech LLC or your equipment dealer's representative for clarification.**

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***EponaTech Metron* is a registered trademark of EponaTech LLC.**

## **Metron Desktop PC or Laptop System Requirements – Minimum**

Below are the minimum requirements for the Metron software to operate but may not display images at the speed and image quality you might need.

### **Operating System**

Windows XP Pro 32-bit, Windows 7 or Windows 8.

Make sure the acquisition device supports the specific operating system; some of the older devices. Older X-Ray devices are like printers – many older printers will not work on new computers with Windows 7 or Windows 8.

### **Graphics System and Monitor | Desktop PC**

Widescreen 20+” monitor with a minimum resolution of 1600 x 1200 or greater / 60 Hz, image contrast ratio – 800:1 (the higher the better), and response time of 8 ms or better plus an independent graphics card with 512MB is strongly recommended for best image presentation quality.

### **Graphics System and Monitor | Laptop**

Laptop should have a 17 inch screen for best display of X-Rays. Display resolution of 1600x900 or greater with High Definition Anti-Glare display strongly recommended.

### **RAM**

Computers running Windows XP Pro will perform best with at least 2GB of RAM.

Computers running Windows 7 or newer operating system will perform best with at least 4GB of RAM.

### **Disk Space**

To install Metron and have needed space for the images, the desktop PC or laptop must have at least 200GB of available disk space. Consider 350GB-1TB disk. Also consider the new Solid State Drive (SSD) for laptops used in mobile laboratory application. They are more tolerant of rough use.

### **Processor Speed**

Metron will typically perform better on newer/faster desktop PC or laptop. To maximize the speed/efficiency of the Metron program, and your overall image processing/viewing experience, use the fastest desktop PC or laptop possible.

### **Internet Connection**

High speed Internet connection availability is required for any desktop PC or laptop that will be running Metron. The internet connection is critical for training & support. New software releases are also provided automatically via internet. Also, with Metron, you can send diagnostic images electronically to a remote radiologist; this is not possible without an Internet connection.



**WARNING:** Failure to ensure that the host computer satisfies the above-stated minimum requirements may cause Metron to be unacceptably slow or cause user interface elements to be off-screen and un-viewable, or other problems with operation.

## Quick Start Guide

Thank you for your purchase of Metron Software. This guide will walk you through the simple process of installing Metron Software.

### 1. Load the CD (if applicable)

Load the CD into the CD Drive of your computer. The CD should auto-start and present you with an informative installation screen. If it does not start automatically, navigate to the CD using Explorer or My Computer and double click on “Metron.exe.”

### 2. Run a Downloaded Installer (if applicable)

If you do not have a CD, but have downloaded a Metron installer file, simply double-click this file to launch the installer. If you were given two installer files (one for ‘code’ and one for ‘data’, run both of them before attempting to enter Metron).

For a new install of Metron on a computer that it has never been installed on, you are required to run the provided ‘Data Installer’. If it is an ‘upgrade’ install for a previously installed copy of Metron, there is no need to run the ‘Data Installer’.



**WARNING:** Failure to run the provided ‘Data Installer’ during a first-time install of Metron will result in an incomplete installation of the software. If you are not sure if the ‘Data Installer’ was previously run, always run it again (it does no harm to run it additional times).

### 3. Starting the Software

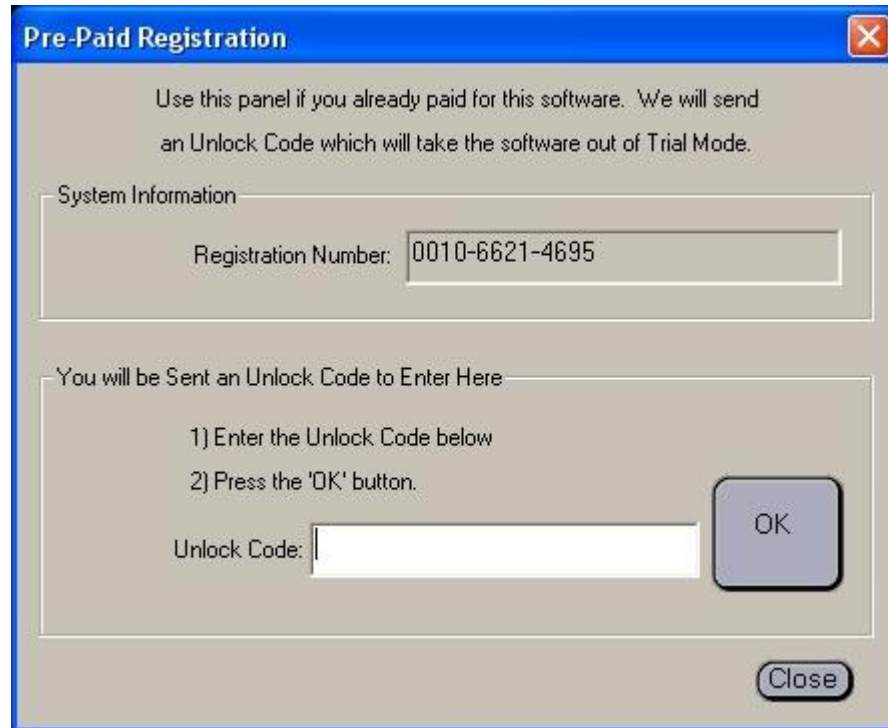
After the software has installed, you will find new icons on your desktop. There are shortcuts to the Metron manuals and the shortcut to start the Metron software:



Double-click the Metron software icon and Metron will start in trial mode.

#### 4. Unlocking the Software

- 4.1) Start up Metron. In the “top-bar” (the menus across the very top of the screen) click on the “Register” option, and then choose the “Pre-Paid” choice.



The image shows a Windows-style dialog box titled "Pre-Paid Registration". It has a blue title bar with a close button (X) in the top right corner. The main area is light gray and contains the following text: "Use this panel if you already paid for this software. We will send an Unlock Code which will take the software out of Trial Mode." Below this is a section titled "System Information" with a text box labeled "Registration Number:" containing the value "0010-6621-4695". Further down is a section titled "You will be Sent an Unlock Code to Enter Here" which contains two numbered instructions: "1) Enter the Unlock Code below" and "2) Press the 'OK' button." Below these instructions is a text box labeled "Unlock Code:" and a blue "OK" button. At the bottom right of the dialog is a "Close" button.

- 4.2) Contact your software dealer or EponaTech LLC to obtain the Unlock Code. They will need the “Registration Number” shown on the panel, along with information on who the end-user of Metron will be.
- 4.3) Once you get the Unlock Code, enter it in the space provided near the bottom of the above panel, then click on the “OK” button.
- 4.4) Use the “Check Status” choice under the “Register” pull-down to check if your software is now enabled. You’re done.

## WARNING

WARNING: Failure to unlock the Metron software will leave your system in “Trial Mode” which is not fully functional.

## Starting Metron

The installation program has placed an icon on your desktop that looks like this:



Double clicking the icon will start Metron. If the icon does not appear on your desktop, you can start Metron by going to the “Start” button (extreme lower left on your computer screen), then choosing “Programs”, and then choosing “EponaTech” and then “Metron”.

The installation program also places an icon on your desktop called “Metron Guide” which is a shortcut to this document.

## When Metron Starts Up

When you first start up Metron, you will see a panel informing you that you are in “Trial Mode”. In Trial Mode you will find many features of Metron are blocked to you. But, you may be able to explore Metron a little bit and get a feel for it.



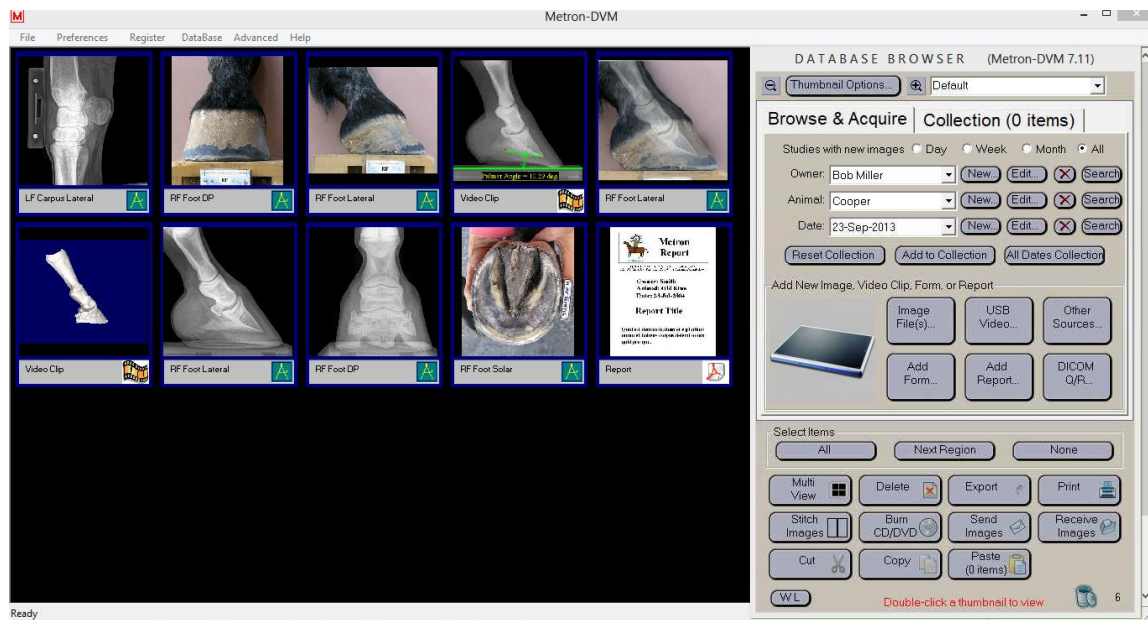
If you have already purchased Metron, the company you purchased it from can supply you with an “Unlock Code” which will take you out of Trial Mode and fully enable Metron.

## First-Time Install of Version 7 over an Older Version of Metron

If you are upgrading from an earlier version of Metron to version 7, you will have to go through a one-time “database conversion” operation. This operation will convert your old database(s) into the modern format for use with Metron version 7. Please see Appendix A for further instructions on this process.

## The Database Browser

Metron always starts in the “**Database Browser**”. This is where you can browse and find all images, video clips, and reports in your Metron database. The basic organization of the database is by Owner, then Animal, then Date. Each Owner may have one or more Animals, and each Animal may have been imaged on one or more Dates. We sometimes use the term “**Study**” for all the images of a given animal on a given date. The Database Browser always shows thumbnails (small images) for all the items in the selected study.



The Database Browser panel and thumbnails representing all the items in a selected study.

The Database Browser is like the “home page” of Metron. You always start here, and you often come back to it. The database consists mostly of images, but can also contain video clips, and reports. Additionally, there is something called a form, which is an image, but it is created from several individual images arranged in a certain pattern. Beneath each thumbnail is a small icon that indicates what kind of item it is.

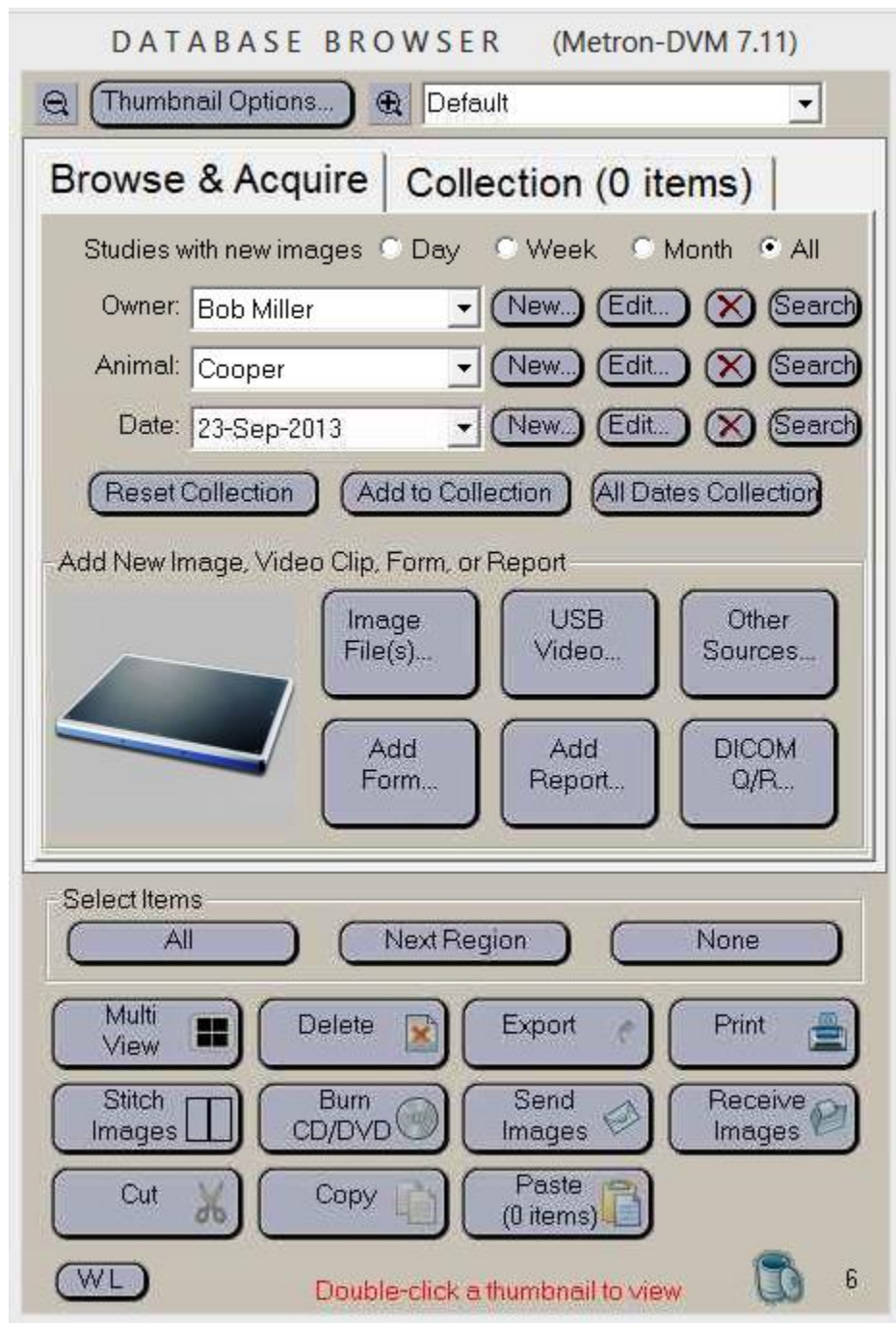


The Database Browser panel is shown below. It indicates the currently displayed Owner, Animal, and Date which tells you which study you are looking at. By clicking the “down arrow” next to the Owner, Animal, or Date, you can switch to another. By clicking the “**New...**” button to the right of each of these, you can create a new Owner, Animal, or Date. When you first create a new Animal, you can enter its species, breed, and other data. This “Animal Data” can later be viewed or edited by clicking the “**Edit...**” button to the right of the animal’s name. You can delete an owner (and all animals and dates and images) by using the “**Del**” button to the right of the Owner. Likewise, you can delete an entire animal, or you can delete just one study by deleting a certain date. Anytime items from the database are deleted, they go into Metron’s “**Trash Can**” which is shown in the lower right corner of the Database Browser panel. You can click on the Trash Can icon to un-delete items or to finally empty the trash and make the deletions permanent.

There are “filters” that let you show only studies which were taken today, or during the last week or month. Also there is the ability to search by owner name for a particular owner, or to search for a particular animal either by its name or by the patient ID.

The tab labeled “**Collection (0 Items)**” is for an advanced feature to be covered later.





The Database Browser panel lets you find any image in Metron, lets you jump into various ways to acquire a new image, and lets you operate on sets of images in various ways.

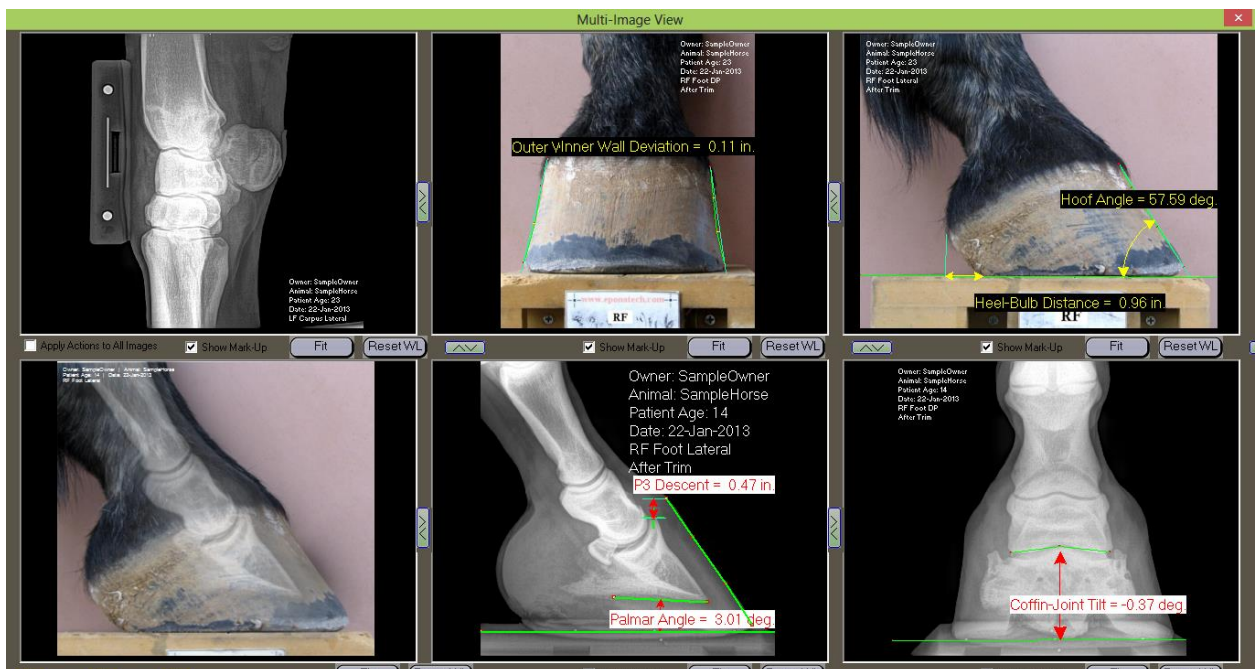
**NOTE:** Your Database Browser panel may appear with a different icon as that shown above, depending which imaging hardware your copy of Metron is configured for.

## Multi-Image Operations



An important concept behind the Metron user interface is that you can perform some operations on multiple images at a time, whereas other operations only make sense to perform on one image at a time. Any time you want to perform an action on several images at once, the place you do that is in the Database Browser panel. The lower portion of the panel (shown above in isolation) contains actions that can be performed on multiple images at a time. You specify the images by single-clicking on the thumbnails, which will turn the border of the thumbnail **red**, showing that it is selected.

For example, click on 6 thumbnails to highlight them with a red border; then click the button labeled “**Multi View**”. You will see those 6 images side by side as below:



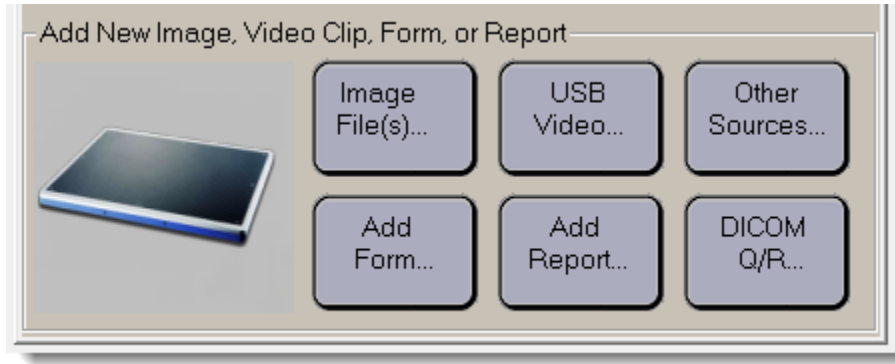
In multi-view, below each image, you are able to zoom, and you can choose to turn off or on any “mark up” that is drawn over the image.

Other multi-image operations that you can perform are:

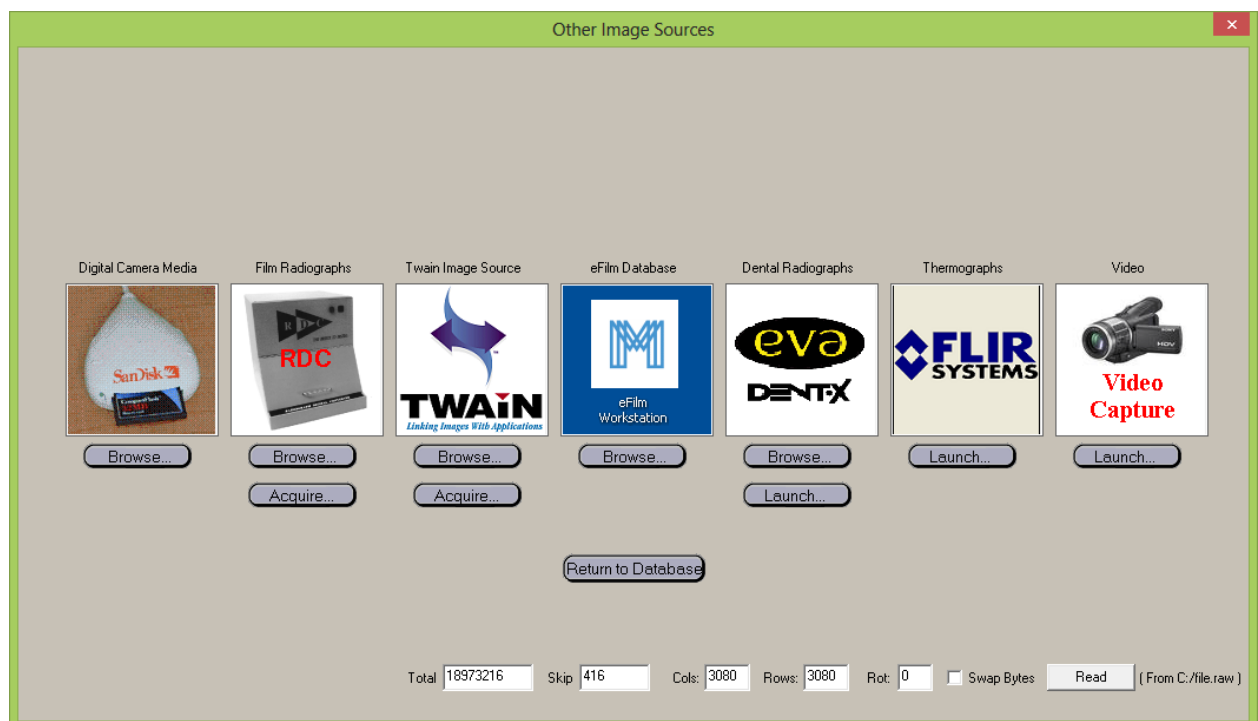
- Delete a group of highlighted images
- Export a group of images (that is, write them out to your disk in whatever image format you choose (JPEG, Bitmap, DICOM, etc))
- Print a group of images (you can choose how many per page to print)
- Stitch 2 or more images into a single image
- Send images by posting to [www.MetronWebViewer.com](http://www.MetronWebViewer.com), or to iPad or iPhone users, or send them by DICOM, or e-mail them (see later section in this manual)
- Burn some images to a DVD or CD
- Cut or Copy some images (later to be pasted into a different location in the database).

Just above the buttons that perform operations on multiple images at once are three buttons that can be used to help you highlight, or select, which images you want to do the operation to. You can “**Select All**”, “**Select None**”, or “**Select Next Region**”. The “**Select Next**” button will highlight all images from a certain anatomical zone, and subsequent clicks to this button will step through the various anatomical zones found in the study.

## Adding Images into your Metron Database



This section is known as the “**Acquire Box**”. Any new item that you wish to bring into Metron will be brought in by clicking on one of the choices in this box. The exact set of choices in this box may look different in your copy of Metron, depending on which hardware devices you have interfaced to Metron. Metron is used with CR and DR radiography systems, and with USB video cameras (e.g. an inter-oral camera), and other devices. If your Metron came as part of a DR or CR system, there will be a large icon on the left hand side of the acquire box which you will click in order to acquire new radiographs. The button “**Add Form...**” lets you add a Form to your study, and the button “**Add Report...**” lets you create a report and add it to your study. The button “**Image File(s)...**” (or in some cases called “My Computer”) is the way to import any image file on your PC into Metron, and also any \*.avi video file can be imported this way. Finally, the “**Other Sources...**” button brings up a panel with methods to input images from various other sources (e.g. scanners, twain devices, etc).



## Importing Images from Files

To import images from a digital camera or from any other source, you start by clicking on the “**Image File(s)...**” or “**My Computer**” button in the acquire section of the Database Browser. This will bring up a new display of thumbnails, but note that these thumbnails do not have the icons in the lower right hand corner beneath them. They are not in Metron yet – you are simply viewing image files that happen to be on your computer’s disk. On the right hand side of the screen is a “folder Browser” which you use to navigate to any folder on your computer (indeed to any folder anywhere on your office network – as long as remote disks are mounted with “drive letters” on your PC)



You can double-click one thumbnail to bring it into Metron, or you may highlight a group of images and then click the button “**Import Highlighted Images...**”. This brings to a screen in which you see one image at a time in its full size, and with the “**Anatomy Diagram**” shown on the right hand portion of the screen:



# METRON - DVM

Owner:  New...

Animal:  New...

Date:  New...

Image Import

Select the anatomy of the image, then use the 'Accept into Database' button below.

☒ Skeletal
 ☐ Dental

Radiograph ▼

Select View...

Lateral  
 DP  
 PA  
 60 Deg DP Nav  
 60 Deg DP P3  
 Navicular Skyline  
 Med Lat Oblique

Annotation

Location

Font:

☒ R/L
 ☒ Region
 ☒ View

Add Note

Accept into Database

Reject this Image

Database Browser...

Click on the appropriate anatomical zone (one of the green dots) to indicate to Metron what anatomy is in the image you are importing into Metron. Additionally, there is a list in which you select the “**View**” that best describes the image (e.g. Lateral, DP, etc). You can adjust the size and location of the annotation on the image as well. When complete, click the button “**Accept into Metron**” to finalize bringing the image into Metron. If you had selected several images, you would now see the next one; repeat the procedure of labeling the anatomy and view of each image.



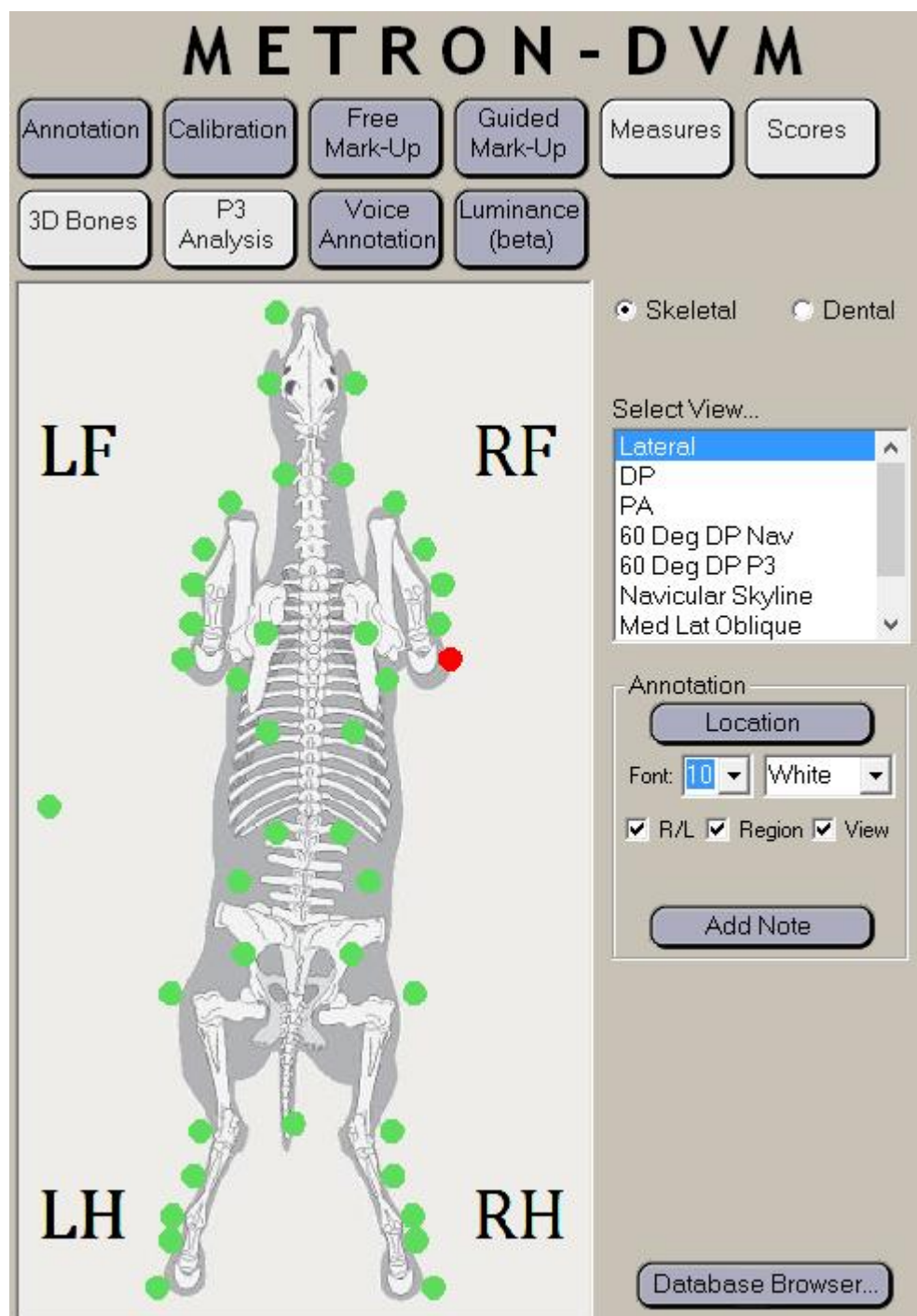
**WARNING:** It is up to the operator of Metron to properly choose the anatomy and view corresponding to the image that has been acquired. Failure to do this labeling properly will result in an image with an inaccurate annotation label.

## Single Image Tools

When an image is in Metron and you view it alone on the screen, you can perform various operations on the image. You get into “**Single Image View/Edit**” immediately after importing a new image into Metron, or by double-clicking any image thumbnail from the Database Browser screen. The single image operations are entered by clicking on the large buttons just below the “Metron-DVM” label and above the anatomy chart.

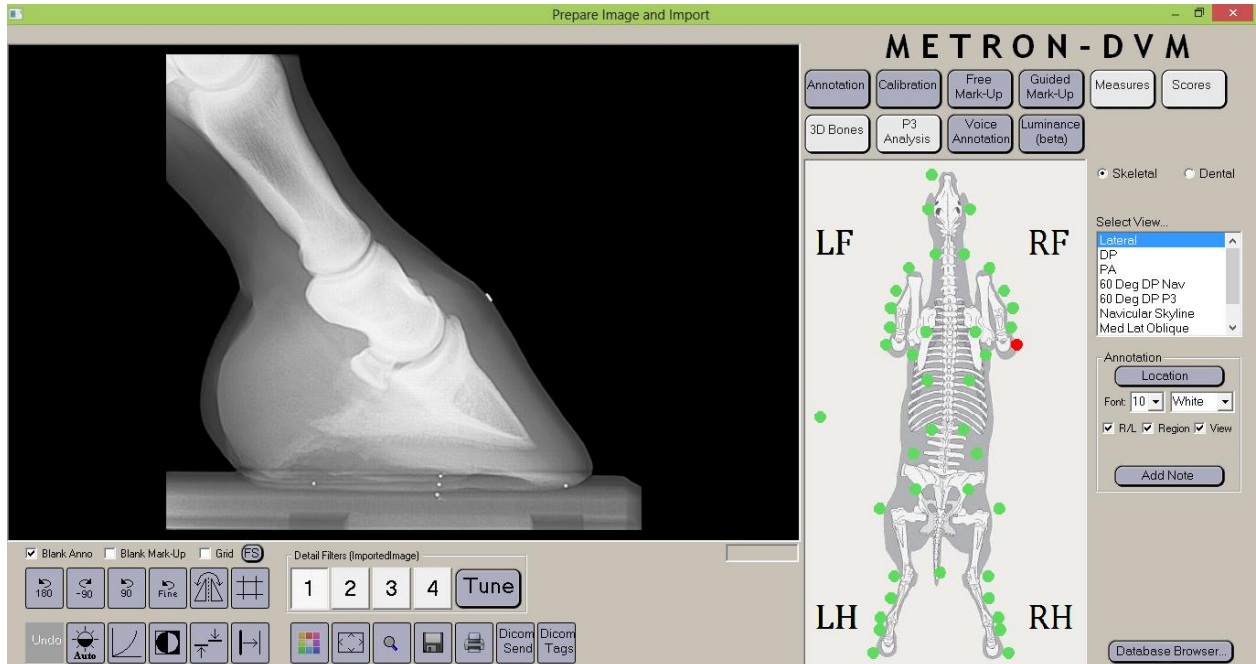
In the example below, there are many operations available:

- **Annotation:** All images have this feature which lets you pick the anatomy and view
- **Calibration:** Prior to making measurements in images, you need to calibrate
- **Free Mark-Up:** A set of tools that let you make measurements and add notes to an image
- **Guided Mark-Up:** A protocol for making measurements for certain image types. In Metron we have patent hoof analysis measurements that you are guided to make. For small animals we support the Vertebral Heart Score (VHS) and the TPLO procedure for dogs, and other such tools will be added in the future.
- **Measures:** this panel presents the measurements which resulted from a Guided mark-Up session
- **Scores:** this panel presents a scoring system associated with guided mark-up.
- **3-D Bones:** this is a specialty function just for later radiographs of the equine foot. Metron creates approximate 3-D models of the 4 bones of the distal limb
- **P3 Analysis:** this is patent-pending method we propose for measuring the health of the equine pedal bone (available for lateral radiographs)
- **Luminance:** this is a ‘beta’ feature related to measuring bone density, but not fully developed yet. We are engaged in university research in this area.



The number of buttons displayed at the top of the graphic will depend on the kind of image that you are viewing. Not all operations are available on all image types.





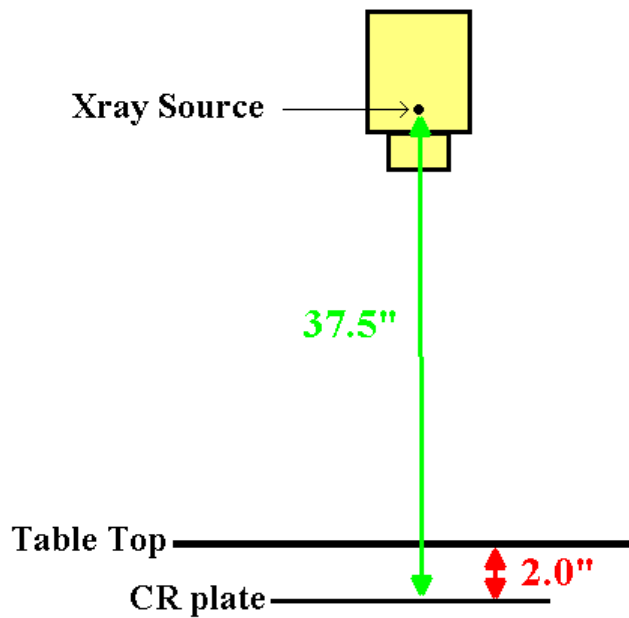
In the single image view/edit screen, a row of buttons across the bottom of the screen provide image filtering tools and other functions.

## Image Calibration

Due to the nature of the geometry of radiographic imaging, all radiographs have inherent *magnification* in them. For example, if one puts a ruler on a radiographic film, the measurements one would get are not true size of the radiographed objects, but rather they would measure larger than actual size.

### Example: Table Arrangement

The figure below shows the physical setup (patient on a table). The two numbers shown are constant.



The two fixed offsets of importance in a table setup. Where “CR plate” is indicated, it could instead be a DR flat plate, CCD technology, or film.

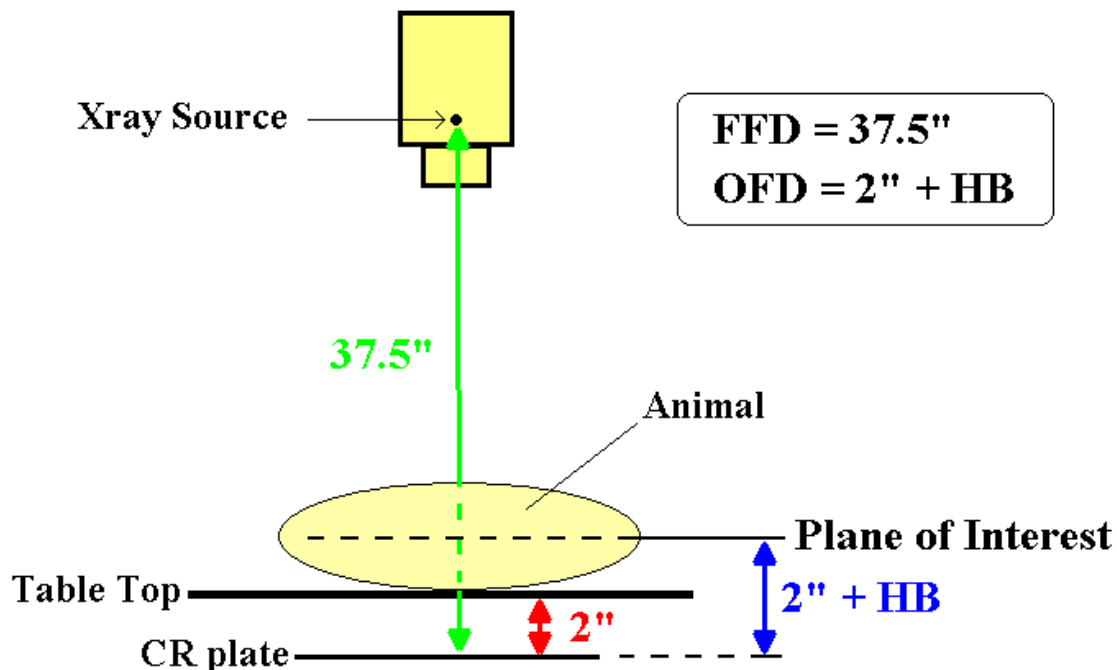
## Concept: The “Plane of Interest”

To be precise with radiographic calibration, it is not possible to simply program constant offsets into the imaging software. This is because it is subject-dependent and view or procedure dependent exactly where the calibration is needed. An important concept is the “plane of interest” which is a plane, parallel to the imaging plate, but offset some distance towards the generator. Calibration can be used so that accurate measurements can be made in this plane of interest. But, this requires that

- A) The practitioner decide where the “plane of interest” should be, and
- B) The imaging software must be told where this “plane of interest” is located.

For example, for a human lying on their side on a table, the best general choice for the plane of interest would be at about half the body thickness – approximately the plane containing the spine. However, if you were shooting radiographs intended for pre-surgical planning for the knee, or some other specific anatomy, the ideal choice for the plane of interest is the plane most nearly containing those anatomical features you intend to measure. The figure below shows the best general plane for a person lying on the table.

Of course, this is just an example, and the same applies for a subject standing in front of a wall-mounted detector, and so forth.



The best general choice is to locate the “plane of interest” at a distance above the table corresponding to half of the subject’s thickness.

## **FFD, OFD, and Magnification Factor**

In the Metron software we use the terms Film Focal Distance (FFD) and Object Film Distance (OFD) to describe the physical set up and location of the plane of interest. The FFD is the distance from the source of X-rays to the imaging plate, and OFD is the distance from the plane of interest to the imaging plate.

Given these values, the magnification factor evident in the radiograph is:

$$M = \frac{FFD}{FFD - OFD}$$

For example, for a subject that is 6” thick (so “HB” in figure 2 is 3”) we have the values:

$$FFD = 37.5''$$

$$OFD = 5.0''$$

Which gives a magnification factor of 1.154. This means everything in the image is 11.54% bigger than true size. For all the films you shot on this system, if you were to measure with a ruler on the film, a 10” distance along the spine would measure 11.54” with your ruler.

## **Pragmatism and General Use**

A great majority of radiographs of interest are not used for measurements in any way, so none of these issues of calibration matter at all.

However, in some procedures measurements are important. It is also our belief that the small amount of extra effort that must be expended to ensure calibrated images should be expended for all images as a matter of standard practice. Clinics spend a great deal of money for diagnostic imaging, and they should be able to have the benefit of accurate measurements in the images obtained.

The current state of the art is that very few practitioners think about calibration, and support for it in the major CR and DR systems on the market is generally lacking. The solution adopted by some vendors is simply to add a line to the radiograph’s annotation that states “Scale is approximate”.

## **Radiographic Calibration in Metron**

Metron supports several schemes to achieve calibration due to the number of different systems and situations we work in. In some schemes, knowledge of the FFD and OFD are not required at all – but these schemes require that a special marker was placed in the plane of interest when the image was acquired.

### **Metron-Scaler...**

The easiest and best ways of calibrating require a marker of known size placed "in the plane of interest". To this end we sell a little widget called the "Metron-Scaler" which works well. It can be Velcro-strapped to a leg, or placed at 'mid body' or, if super-accurate calibration not required, can simply be placed on the table (hence, lower than 'mid body').

The "Metron-Scaler" will be automatically located by the Metron software (most of the time - something obstructs it or if the exposure is off, it may not find it, then you simply pick two points on it and you are calibrated.)

### **Pick 2 Points...**

Next easiest is something metallic of your own that you may have that could be placed. In this case, Metron won't automatically find it, but you can use the calibration option to "Pick 2 Points" that are a known distance apart and you are calibrated -- so, very easy.

### **Known Pixel-Pitch...**

Now on to ways that require knowledge of FFD and OFD:

If there is no scale marker "in the plane of interest" then the only way to get calibrated is to know the relationship between pixels and physical length on the CR or DR plate, and also to know the FFD and OFD so that Metron can do the math to transform all measurement into a plane parallel to the CR or DR plate, but offset from it (the "plane of interest"). This is known as the "Known Pixel Pitch" method of calibration.

In the case of CR, Metron knows the scan setting used. In the case of DR, Metron knows the pixel spacing of the detector plate. But to transform the measurements (that is, to "take the magnification out") we must have the FFD and OFD, and this is entered into the calibration panel. In case you want an approximate plane of interest always to be a certain height off or your table, you can enter these values once, and you'll see that Metron will "remember" values put in for FFD and OFD from session to session.

## WARNING

WARNING: Metron provides several methods to calibrate images. Failure to carefully follow calibration procedures may result in the inability to make accurate measurements in the affected image(s).

### Calibration Hardware for Metron



The Metron Block is a calibration tool that will ensure that equine hoof radiographs and photographs of the hoof can be accurately measured using Metron software.

### Positioning the Hoof on the Block

It is important to try to get the horse to stand such that the foot is aligned with the fiducials (grooves) on the top surface of the block. Along the long axis of the block, the hoof should be centered on the grooves, and we suggest that the widest part of the foot be centered on the other set of grooves. The figure below illustrates ideal positioning.



Note that the block is symmetric side-to-side, but not front to back. The front and sides of the block have holes and black screw markers, whereas the back of the block has no holes.

## Positioning the Camera when Photographing

The most common mistake when trying to document the hoof photographically is that the camera is held too high. It is important to hold the camera so the center of the lens is at the same height as the top of the block. The camera should be about 2 or 3 feet away from the block, although the precise distance is not important, as the block can compensate for distance with its built-in scales. The images below are properly taken photographs of a hoof.



**Lateral photograph:** Note that a “dry erase” pen is used to write the horse’s name and the date of the image on the side of the block. Note that the top surface of the block is seen “edge on” – if you can see the top surface of the block, then you held the camera too high! Also note that you must be aligned with the block such that you can see the black markers at the bottom of the circular holes in the side of the block – this ensures you were lined up approximately perpendicular to the block. Practice taking some images and then compare your results to this image.



**Frontal photo:** Make sure the block is positioned so there are the holes in the side of the block facing the camera. A “dry erase” pen is used to write the name of the horse, which foot, and the date of the image. Note that you can see the black markers at the bottom of the circular holes if you have positioned the camera properly.

### Calibration in Metron for Photographs

Metron will prompt you to pick the four black marker points on the block (two are on the surface of the block and two are in the circular holes) as shown in the image below.



**Lateral Photo:** Metron prompts you to pick the four black markers on the block. Here, they are highlighted in green after they are picked.



## **Why Four Calibration Points?**

By picking four points, two of which are at a different distance from the camera, Metron can automatically compensate for the focal distance of your camera. No matter how close you were to the block, and no matter how your camera was zoomed, measurements are accurately resolved to the centerline of the block (centerline of the hoof for a lateral radiograph, and at the ‘widest part of the foot’ for a frontal photograph). It is only important that you hold the camera so that the center of the lens is at the height of the block, and point the camera perpendicular to the long axis of the block.

Best is to have the camera about 3 feet away from the block (being too close and using wide-angle zoom can introduce some perspective effects that can reduce accuracy).

## **Positioning the X-Ray Generator for Radiography**

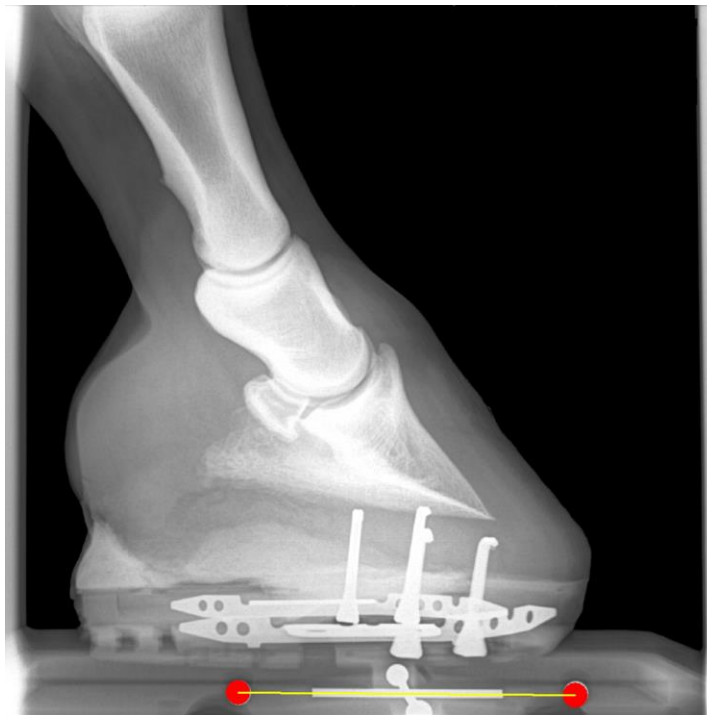
The height of the Metron block is such that it is appropriate for use with a typical x-ray generator such as a MinXray HF80. We position the generator about 30” away from the block, but the distance is not crucial, as the block contains internal metal scaling markers which will provide accurate measurements regardless of the film focal distance used. The film cassette or DR detector plate is placed on the ground just to the side of the block. Note that the positioning of the foot on the block is just as we have shown above for photography – do NOT move the foot to the side of the block to get it close to the film or DR detector.

## **Calibration in Metron for Radiographs**

The Metron block contains special metal markers which can be automatically detected by Metron in order to set a scale factor for the image. In this way, measurements made in Metron will be accurate and will not include magnification effects normally present in radiographic measures.

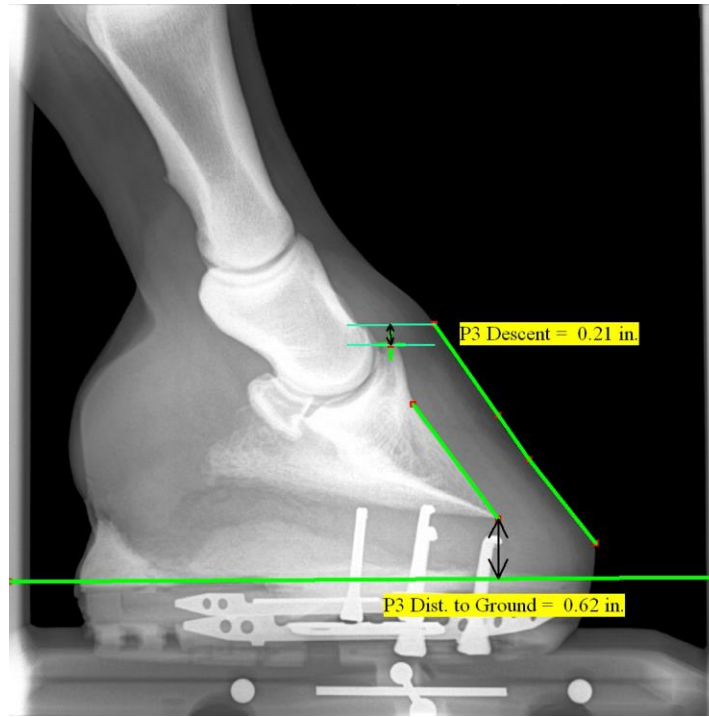


**Lateral Radiograph:** Note the round metal “balls” which are built into the block and will be used by Metron to calibrate the image.



**Lateral Radiograph:** As soon as this image is entered in Metron, the software automatically locates the metal balls and the image is auto-calibrated.

If Metron fails to automatically find the metal balls, they can be picked by the user manually. Depending on the exposure and quality of the radiograph, the automatic detection algorithm sometimes does not succeed.



**Lateral Radiograph:** Example showing just 2 of the 22 numbers that Metron computes for the analysis of the lateral radiograph. These values are accurate because of the automatic scaling performed by the block and the Metron software.

### The “Auto-Scaler” Tool

The Auto-Scaler is an alternative to using the Metron Block. The Auto-Scaler can be placed or strapped to locate it as needed. It contains the same metal markers which will appear in the radiograph and which Metron can use to automatically set the scale for the image.

It is important to place the Auto-Scaler on the subject to be radiographed such that the axis of the Auto-Scaler lies in the “plane of interest”. The “plane of interest” is the plane, perpendicular to the central beam of the x-ray generator, in which you wish to make accurate measurements.



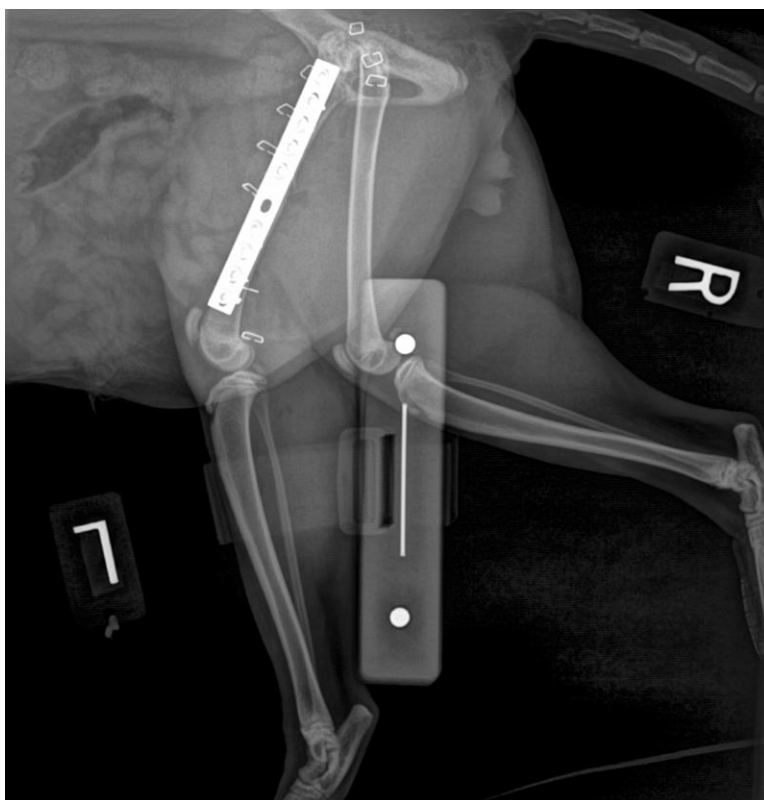
The “Auto-Scaler” with optional Velcro strap.



Auto-Scaler strapped to horse's leg



Image with Auto-Scaler strapped on horse's leg



The Auto-Scaler is particularly useful for Small Animal images

## The “Finger Clips”

Unlike the other two devices already covered, the “**Finger Clips**” are not used for radiography. They are used for photography of the equine hoof, and specifically for the view of the sole. We always sell these in sets of two.

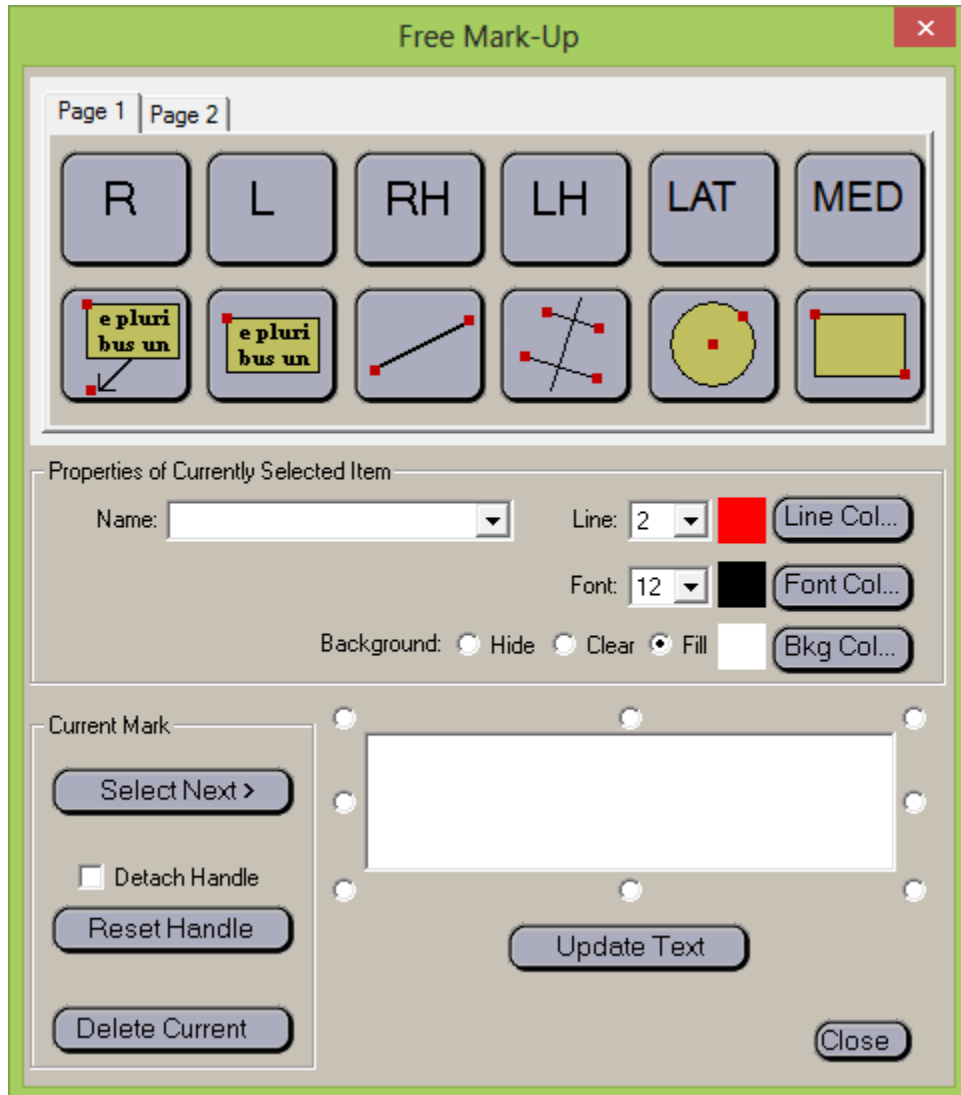
They contain two fiducial points spaced 2.0” or 5.0 cm apart which the user will later be prompted to pick in the image once it is in Metron. There is also a space where, with a dry-erase pen, some information (which foot, date, etc) can be noted.



The “**Finger Scale**” is clipped to a finger and held so that it lies in the “plane of the hoof”. It should be the same distance from the camera as the hoof plane – not closer, not further. The camera should be pointed perpendicular to the place of the hoof.

## Free Mark-Up

The Free Mark-Up panel provides a number of different measuring and annotation options.



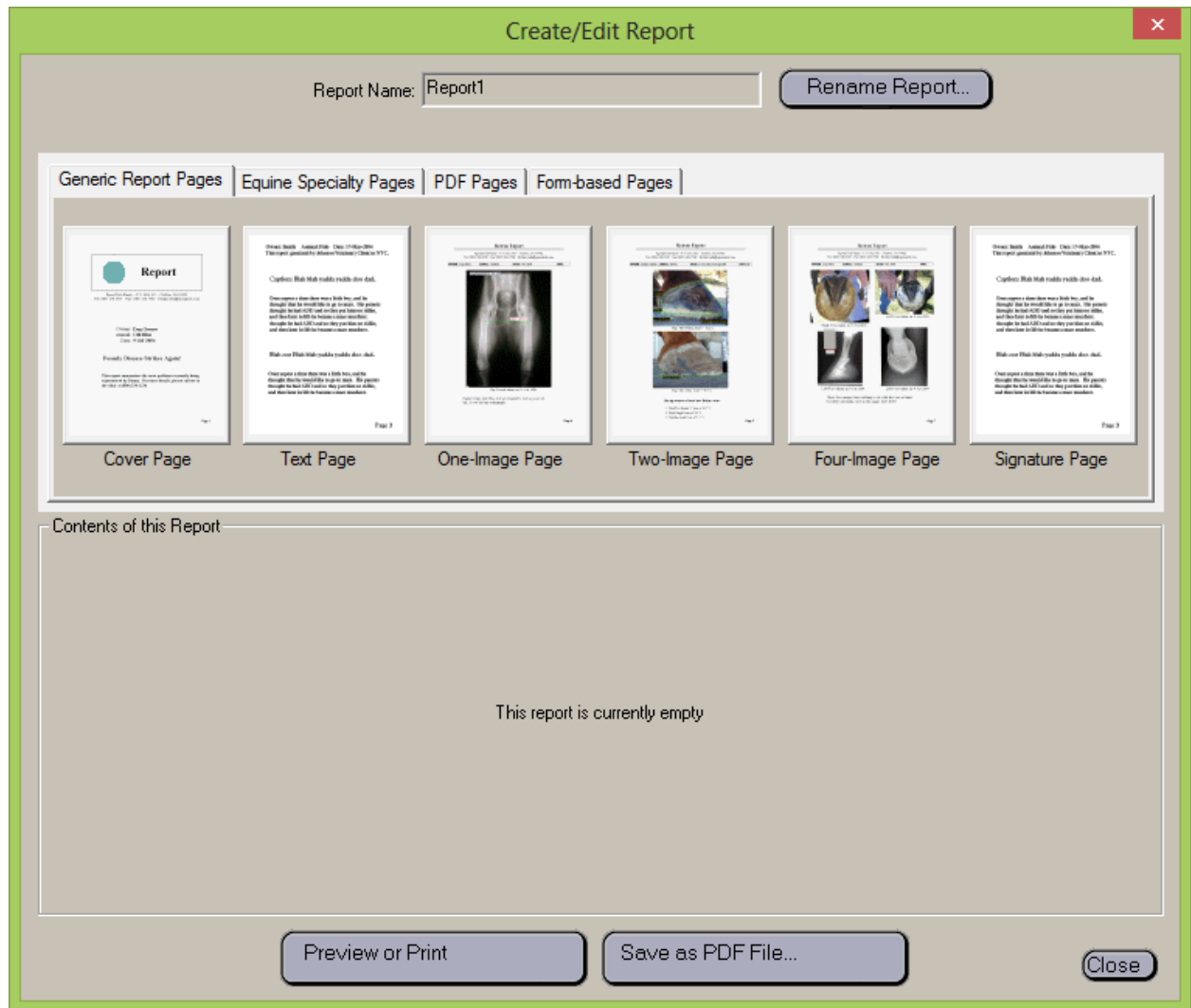
**NOTE:** If you elected not to calibrate the current image, then many of the measurement tools shown above will be absent from this panel.



## Report Creation

An important function of Metron is to generate reports. These reports are multi-page formatted reports containing images and text. Metron users create these reports for their clients and they are a vital communication tool.

The report generator panel is shown below. In this image, a report has already been constructed which consists of several pages.



You create a report by choosing a page type, adding it to the report, and then using a page editor panel (its details depends on the type of page) to fill in the images and text on that page. Pages come from 3 main categories, represented by the 3 tabs in the upper portion of the report generator panel: “**Generic Pages**”, “**Specialty Equine Pages**”, and “**Form Pages**”. Most reports are built from “**Generic Pages**”; the “**Specialty Equine Pages**” format pages in which multiple images which have been measured in Metron are auto-scaled and auto-cropped and made to line up, and also Metron’s scoring system results

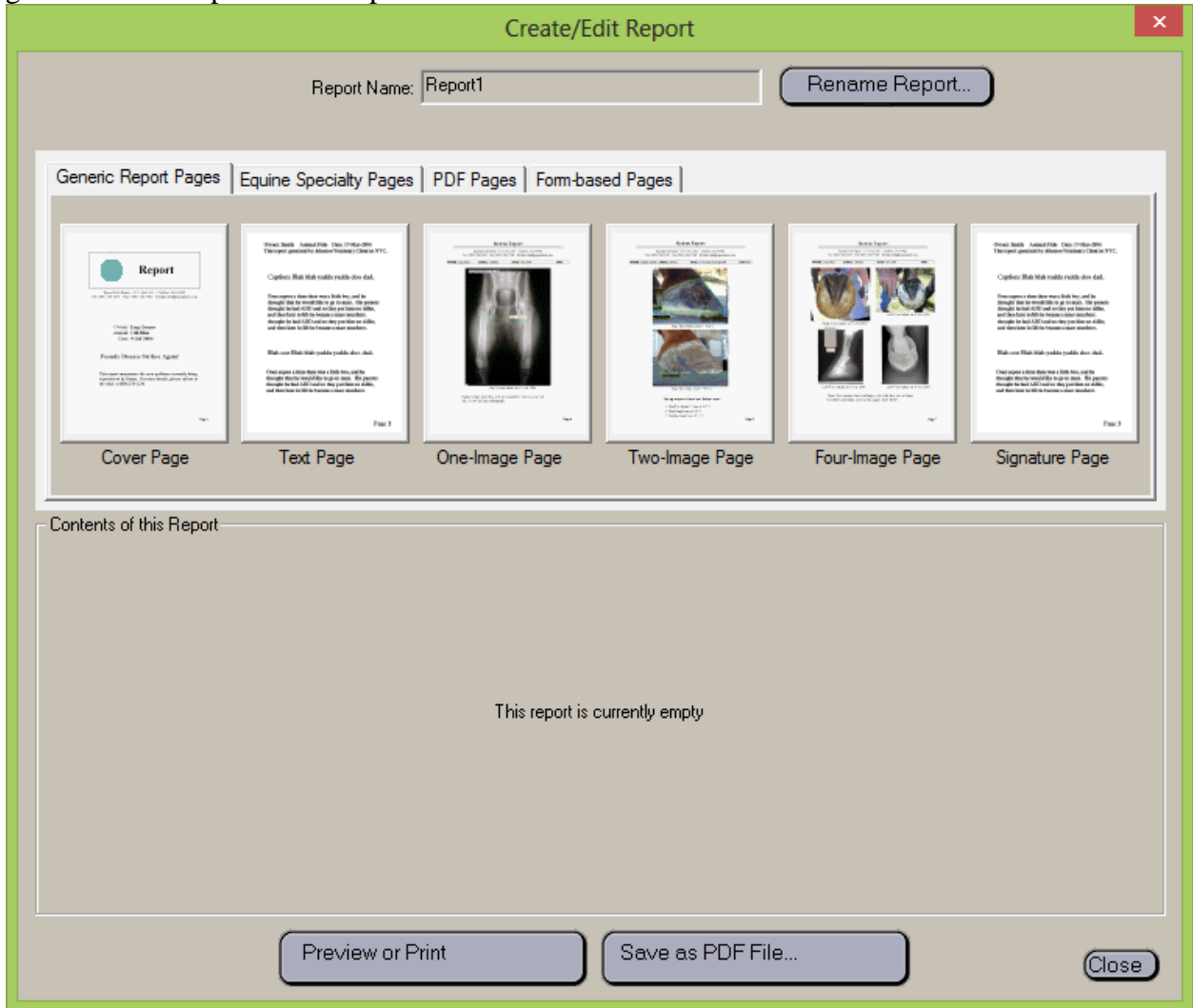


can be reported on the pages. The “**Form Pages**” allow multiple images to be laid out on a page in various ways. Users can create their own forms to get particular layouts of interest.

Reports in Metron can be re-opened and edited at any time. From the report generator panel you can choose to export a report as a PDF file (the free Adobe Acrobat software is needed to view these). If you burn a CD or DVD in Metron and include a report in the study that goes onto the disk, it will automatically be converted to a PDF file and put on the disc. This way, the recipient of your CD will not be able to edit the report. Likewise, you can e-mail a report directly from your Metron database, and it will be converted to a PDF file and attached to the e-mail. There is also a choice in the e-mail panel which will let you send a report (as well as anything else in your Metron database) by e-mail to another Metron user who will then be able to bring the items into their own copy of Metron. In that case, it is not a PDF file that is sent, but a fully editable report.

## Burn CD or DVD

Another important function is to burn a CD or DVD with images and other items to be given to another person. The panel is shown below:



By default, the CD or DVD created by Metron will also contain a “mini-Metron” viewer so that the recipient of the disk can view the images and reports easily. This disk will not install any software on the recipient’s machine – it plays directly off of the CD from the CD drive.

To write a “partial study” onto a CD, highlight the thumbnails of the images you want to select prior to entering the Burn CD panel. From within the panel, you can include additional full studies on the disk.

There is an option at the top of the panel to write a disk without the min-Metron viewer, but rather with images only. If you choose this style of disk, you can select the format of the images: JPEG, TIFF, or DICOM.

## Export and Import of Metron Databases

There are several reasons why you might want to import or export an entire Metron database, or a portion of one. For example:

- To make a back-up of your database, export a copy of it to another disk
- To merge images from a portable Metron-based system that went out into the field back into your main database at your office
- To give a copy of part or all of your database to a colleague.

These things are done with items found under the “Database” entry in the top-bar of Metron.

It is important to note that in the upper right hand corner of the Database Browser the “current database” you are viewing is shown. This is usually “**Default**”. Some Metron users will only ever have this database. In fact, unless there is a good reason to have multiple databases, it is simplest to just have one. In the database tools, the terms “**Export**” and “**Import**” are always meant relative to the current Metron database. That is, you “export out of” the current database, or “import into” the current database.

You can export your database or a portion of it onto a thumb-drive, and then carry it to another computer with Metron, then import from the thumb-drive into the database of that Metron. In the Export Database panel, there is also the ability to export the current database to a CD or DVD. This is a way to accomplish a back-up of your database.



**WARNING:** It is up to the operator of Metron to perform timely back-ups of the Metron database and any other data of importance. Metron contains no automated back-up facility. Back-ups are the responsibility of the user or clinic staff.

The **Export Database** panel is shown below:

**Export Database**

DataBase: Default

Location: C:\Epona\Databases\Main

Export Current Database to....

- ☐ New Location ( e.g. copy to thumbdrive, external disk, or another disk on the network )
- ☒ An Existing Database ( merges into destination database ) **Merge Options...**
- ☐ CD or DVD ( for back-up or transport to another system )
- ☐ A DICOM Server via DICOM-send

Destination

Select the destination database...

DataBase: Default

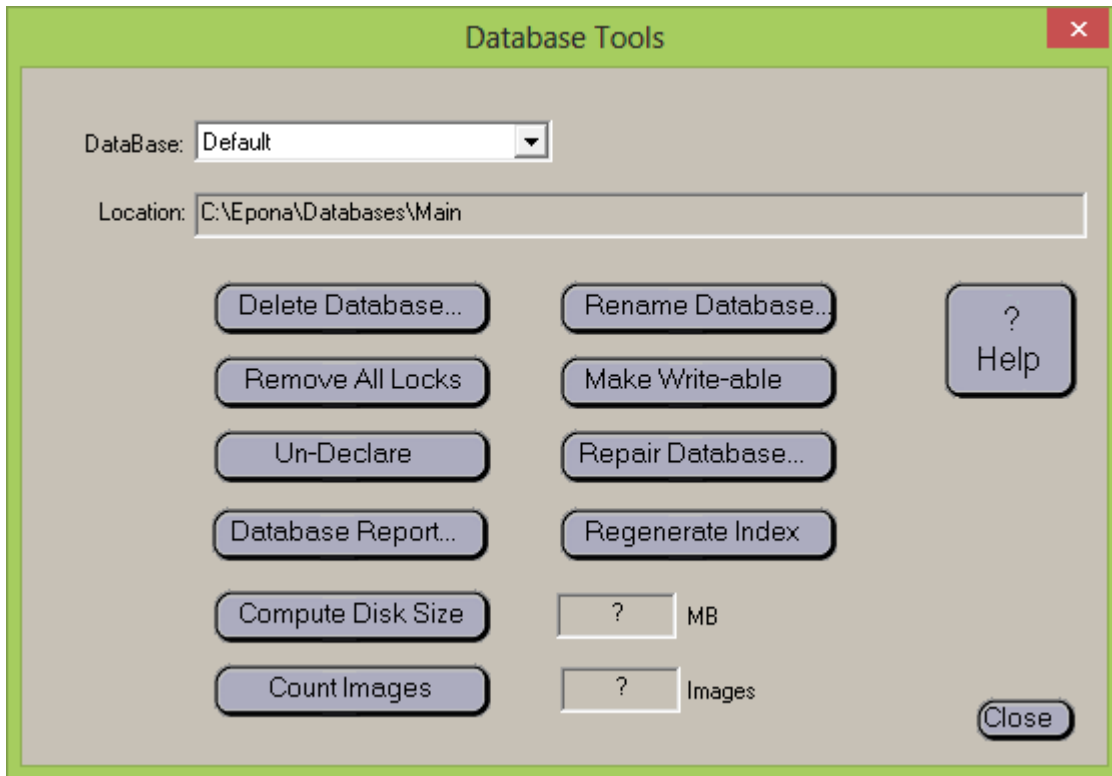
Location: C:\Epona\Databases\Main

Export Entire Database or Subset

- ☐ Entire Database
- ☒ Only Images with dates from **Today** **Last 3 Days** **Last 7 Days**
- ☐ Only Images with dates from 3/ 1/2013 to 3/ 1/2013
- ☐ Only Images associated with Owner AH-SunPrairie\_Dahlk, Marla

**Export** **Close**

A subset of the entire database can be specified by giving a range of dates of the studies. It is often convenient to export only the studies created in, say, the prior week and merge them into some other database.



The “**Database Tools**” panel gives you a way to count how many images are in your database, and to see the total size your images occupy on disk, and other tools.

## Sending Images out of Metron

Images can be sent via the internet in three ways:

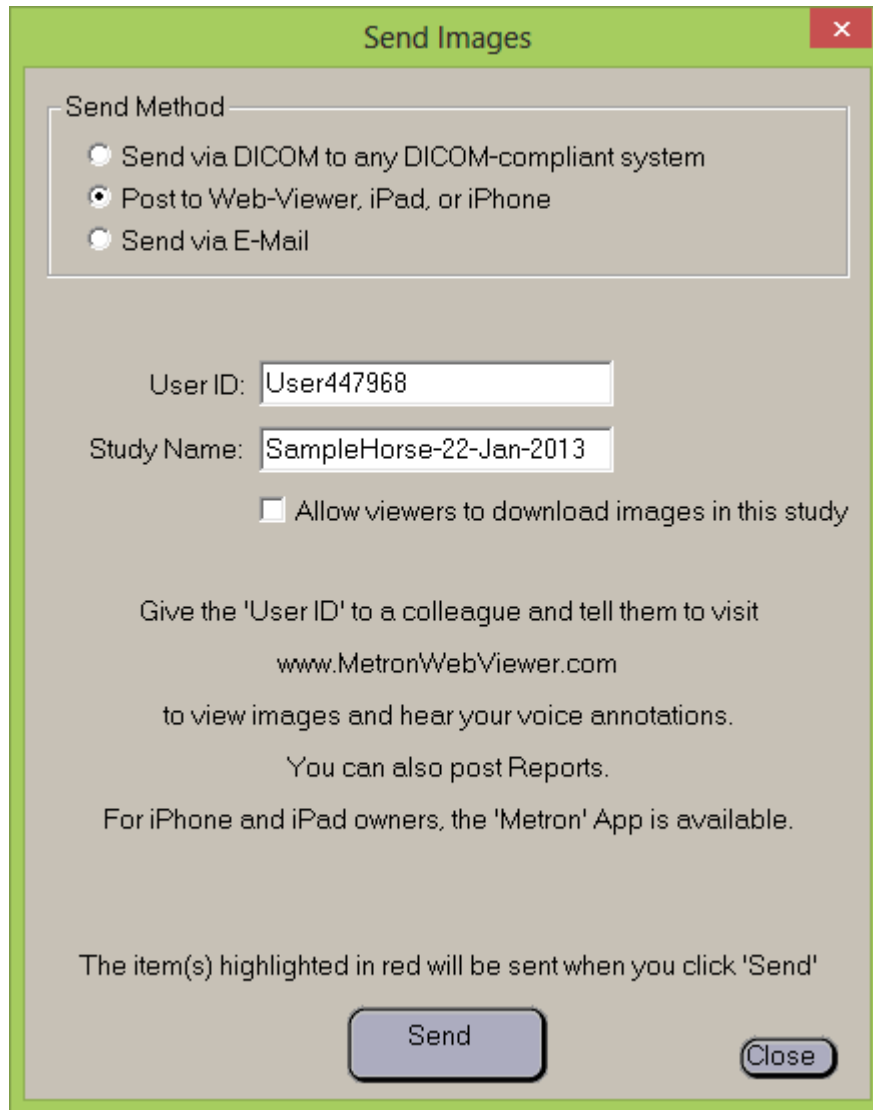
- 1) Send via “DICOM-send” to another DICOM-enabled system,
- 2) Send by ‘posting’ to our web-based viewer, or so an iPad or iPhone user can access the images, or
- 3) Send by e-mail.



To send images out of Metron via the internet, click “Send Images”

In order to send by DICOM, first go to “**Preferences**”, then choose “**DICOM Preferences**” and then configure a server to which you will send. You will have to ask the recipient for the coordinates of their server.

In order to send to the Web-Viewer or mobile device, you use the menu shown below:

A screenshot of a software dialog box titled "Send Images" with a green header bar and a red close button in the top right corner. The dialog has a light gray background. At the top, there is a section titled "Send Method" with three radio button options: "Send via DICOM to any DICOM-compliant system", "Post to Web-Viewer, iPad, or iPhone" (which is selected), and "Send via E-Mail". Below this, there are two text input fields: "User ID:" containing "User447968" and "Study Name:" containing "SampleHorse-22-Jan-2013". Under the "Study Name" field is a checkbox labeled "Allow viewers to download images in this study" which is currently unchecked. The bottom half of the dialog contains instructional text: "Give the 'User ID' to a colleague and tell them to visit [www.MetronWebViewer.com](\"http://www.MetronWebViewer.com\") to view images and hear your voice annotations. You can also post Reports. For iPhone and iPad owners, the 'Metron' App is available." Below this text is a line stating "The item(s) highlighted in red will be sent when you click 'Send'". At the very bottom are two buttons: a larger "Send" button and a smaller "Close" button.

You are free to send to any UserID that you wish: yours, that of your colleague, or just create one on the fly. Under “**Preferences**” and then “**General**” you will find a way to set your own UserID to some friendly name that is easy to remember.

The “Metron App” is available for purchase from the Apple Store for \$29.99



WARNING: Images posted to [www.MetronWebViewer.com](http://www.MetronWebViewer.com) and/or to an iPhone or iPad viewing device are JPEG images and should not be used for a diagnostic reading due to lossy compression and/or limited screen resolution and/or limited contrast ratio of the display.

### **More Information**

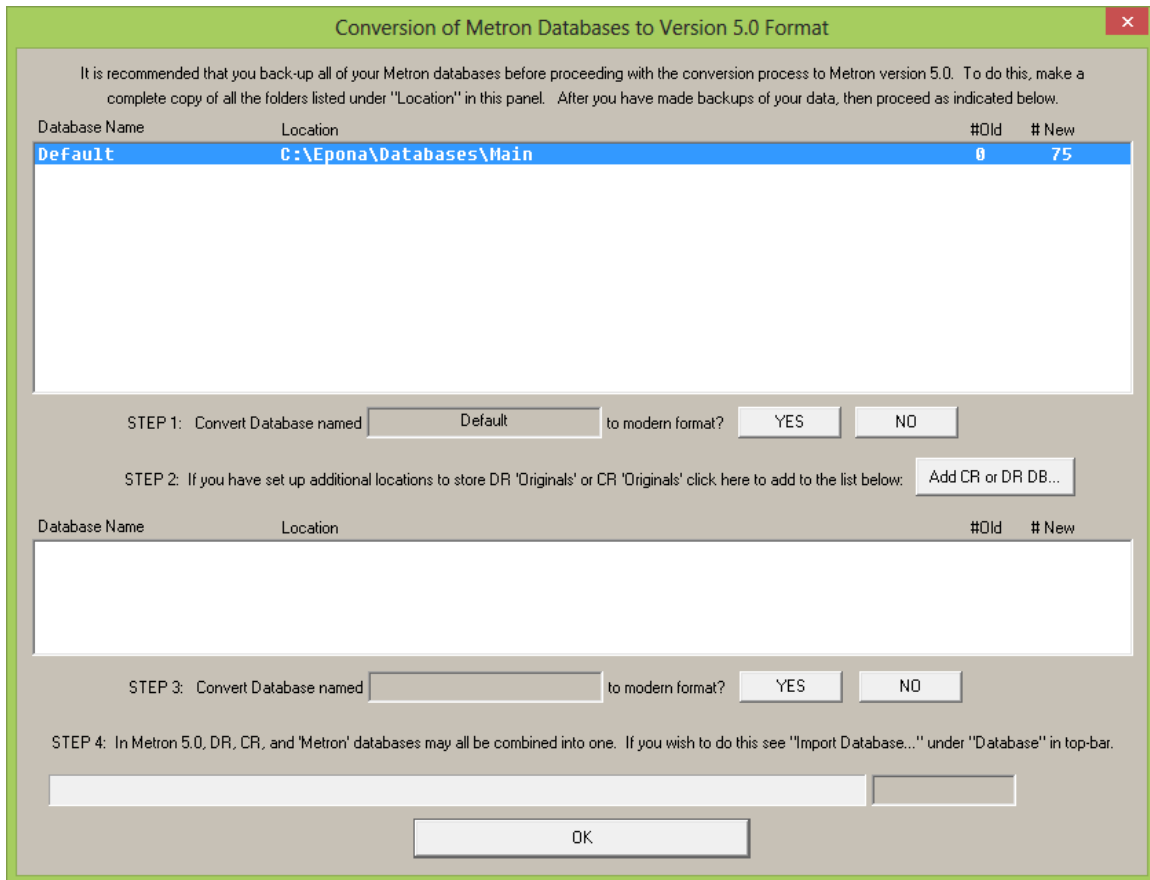
Other specialized documents for various portions of Metron are available (for example, a manual concerning DICOM functions of Metron).

Also please visit [www.metron-imaging.com](http://www.metron-imaging.com) and [www.eponatech.com](http://www.eponatech.com) for more information.

## Appendix A: Updating an Old Database to Version 7 Format

Metron versions 5 & 6 use an updated format for storage of its database. In order to use images (and video clips, and reports, etc) that you had entered into an earlier version of Metron; you will have to convert the old database to version 5/6 format.

When you first install Metron version 7, if it detects that an older version had previously run on the same PC, it will pop up the “**Convert Old Databases**” panel as shown below.



The panel above is what you would see if you are installing Metron-Hoof or Metron-Hoof-Pro, or “unbundled” Metron-DVM. In the display above, there is just one database and the display shows that it has 50 “old items” and 17 “new items”. The 17 new items are some sample images that came with version 5 or 6, so they are already in the new format. The 50 “old items” are the number of images that were found in the old (pre version 5) database format.

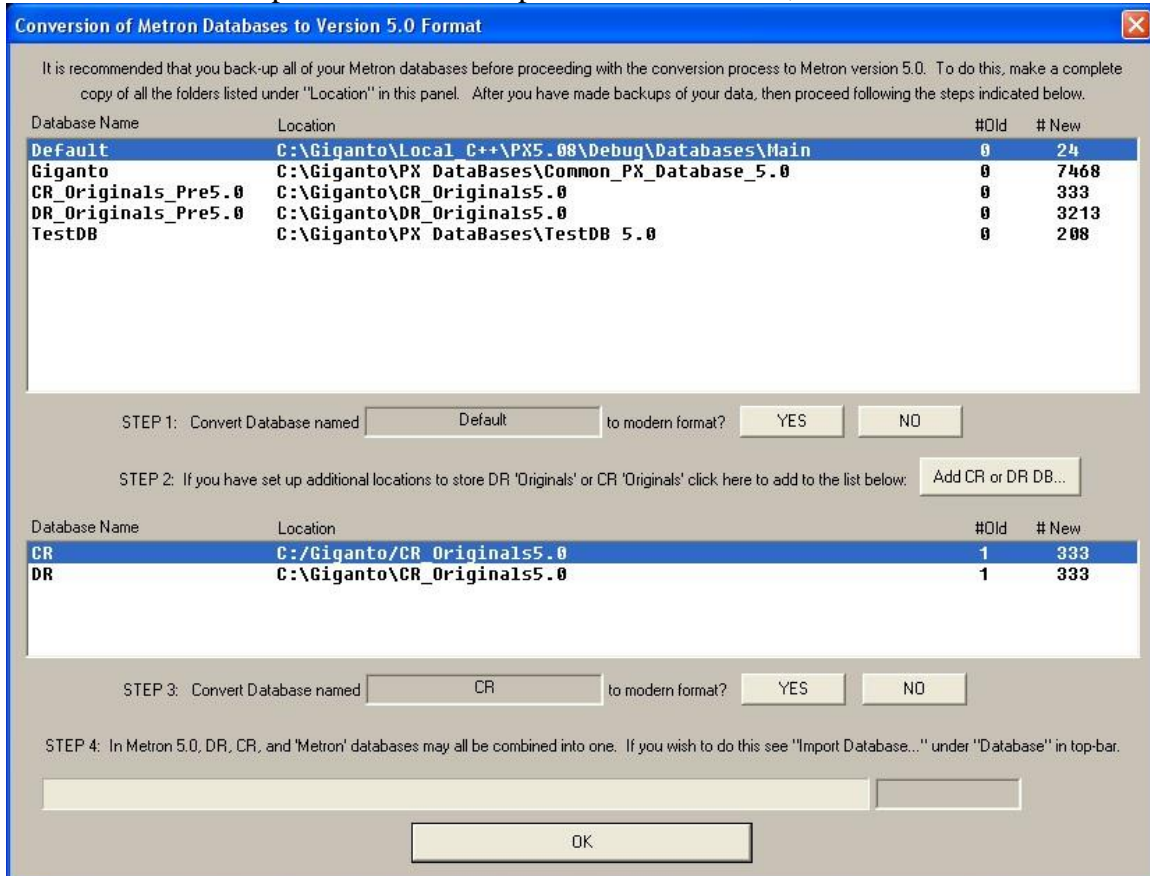
Before proceeding, it is highly recommended that you back-up your existing old database just in case anything goes wrong with the conversion process, or if, for any reason you wish to “go back” to the previous version of Metron. The database conversion that occurs will be a conversion “in place” and will overwrite and update your database, and the database will no longer be readable by a version of Metron prior to 5. If you need to



back-up your old databases before proceeding, then note the location of them from this panel and then click “Exit Metron – Complete this later” to exit Metron. After backing them up, restart Metron to come back to this panel.

At any time in the future, if this panel is not presented to you automatically when you enter Metron, you can always find it under “Database” in the top-bar.

If you have purchased Metron in a bundle with a digital imaging system, then the database conversion panel has a second portion at the bottom, as shown below:



The lower portion of the panel is for converting the CR\_Originals and/or the DR\_Originals databases which were used in Metron version 4 for digital radiography systems. The panel shown above also shows that if, as an advanced user, you had declared multiple Metron databases, then they are all shown in the upper portion of this panel.

Note that in the case of CR or DR originals, Metron can't know if you have other archives from version 4 located elsewhere. If you do, and you wish to convert them to version 5/6, you need to click on the “Add CR or DR DB...” button in order to tell Metron where these archives are.

When Metron is converting your old database(s) to modern format, it could happen that it will encounter problems due to a corrupted file, or a file that was improperly closed, or some other problem. The converter is pretty robust and can often continue past such issues. If it can't, you may also simply restart Metron and try converting again – usually on the second try it can get past the problem.

## **Appendix B: Setting up Automatic Image Rotations**

For most DR systems and some CR systems that Metron supports, there is a way to assign a rotation to the image when it is acquired. For small-animal systems, usually the animal is viewed across the screen, but for DV and VD shots, it is customary to have the body oriented up-and-down on the screen. For this and other reasons, we need a way to rotate images in an automatic fashion depending on the anatomy and the view taken. For equine systems, the required view rotations can become elaborate.

### **The "<Platform>ViewRotations.txt" File**

Here is how to assign automatic image rotations. It is done in a file which sits in:

C:/Epona/Databases/Main

and the file is called (depending on the system) one of these:

SamsungViewRotations.txt

RpanelViewRotations.txt

or maybe another name. Please ask EponaTech if you can't find the file name for your hardware.

Here is an example of the contents of the "<Platform>ViewRotations.txt" file for an equine system:

VERSION = 1.0

Default =-90

\*,DP,RF,90

\*,DP,RR,90

\*,Lateral,LF,90

\*,Lateral,LR,90

Head,\*,\*,0

The idea is this: in the second line I give the "Default Rotation" which is applied to all images unless the default is overridden in a following line in the file. So, the current default is -90. To understand it you have to know where "zero" is.

Each line of the file can specify the rotation to use instead of the default for a given Region, View, and Limb.

For example, if you put in the line

Foot,Lateral,RF,90

it would use a 90-degree rotation for the Right Front lateral of the Foot.

Then, Metron is set it up so that "\*" (asterisk) is the "wild card". So in the current file, the line

\*,DP,RF,90

Means that the DP view of ANY region for the RF will be 90. So, this works for Foot, Pastern, Fetlock, Cannon -- in fact every shot that has a view called "DP".

You see later in the file I have

Head,\*,\*,0

Meaning that any view of the head, I think we want an image wider than tall, so we use rotation = 0 (which happens to be the correct number for one certain panel – it may not be for yours)

The only values of rotation you can give are 0,90,-90,180

You have to use "RR" and "LR" for hind limbs ( not "RH" and "LH" )

Finally, you want to keep this list (the number of lines in the file) as short as possible - simplicity is good - the system searches down this list after each shot to check if the shot should be rotated or not, so its best if the list is not hundreds of lines long.

(Note: if you look at the default values in "SamsungViewRotations.txt" (which is for equine) you will see a rather complete example of 'good settings' for an equine system).

## **DENTAL**

Similar files exist for DR Dental systems, e.g. "DRDentalViewRotations.Accent.txt"

They are essentially only used for flipping the image by 180 depending if in the "Right" side or the "Left" side of the mouth.